VINDUES INDUSTRIEN

Installer and User Manual

FOR DVV-LABELLED WINDOWS AND EXTERNAL DOORS IN ALUMINIUM

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THE SAFE *choice*

Congratulations on choosing DVV-labelled windows and external doors from a member of VinduesIndustrien, the Association of Danish Window Manufacturers.

Buying these DVV-labelled units from one of our members ensures that your windows and external doors have been manufactured under quality control. However, to ensure satisfactory performance in the short and long term it is important that the units are installed and maintained in accordance with the instructions.

Correct installation and maintenance is important
Follow the instructions in this leaflet. If you are not sure how to install the units, please contact the window manufacturer who will provide the necessary instructions. Otherwise, incorrect installation may cause the units to malfunction. This type of problem is not covered by the window and door warranty. Following this manual and having the units installed by experienced window and external door installers is the best safeguard and also ensures the performance of the units.

With regular maintenance and correct treatment in accordance with this manual your new quality products will continue to provide pleasure for years to come.

VINDUES INDUSTRIEN

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VINDUESINDUSTRIEN

Founded in 1977, VinduesIndustrien is an industry association comprising some 65 Danish manufacturers of windows and external doors.

The general purpose of VinduesIndustrien is to look after the common interests of the industry. In this context, safeguarding consumers when they buy windows and external doors takes high priority.

Another important task for VinduesIndustrien is to draw up and maintain the Technical Requirements for DVV-labelled units, which form the basis for the quality control conducted once or twice annually in the companies by an impartial body.

Regularly updated, the Technical Requirements provide the optimum basis for the manufacture of windows and external doors. This applies in particular to their function and life with ever increasing attention to energy and environmental aspects. For more information, please go to www.vinduesindustrien.dk

DELIVERY *and storage*

During unloading and subsequent handling of the units you must employ lifting gear and methods which do not cause damage to the units.

The buyer must check incoming goods on arrival to ensure that the delivery meets the contract and that there are no obvious defects or damage to the units (e.g. caused in transport). If there are grounds for complaints or queries, the supplier must be notified without delay.

Labels and cork pads on glazing units must be removed no later than two weeks after receipt of the goods. All corner protectors, protective foil or other protective packaging must remain in place and only be removed when the units are fitted. If stored outdoors, the units must be placed on bearers or pallets to provide sufficient clearance from the ground.

The units must be securely covered to protect them from

precipitation and dirt. At the same time, proper ventilation around the units must be ensured to limit the risk of condensation under the cover. Separate glazing units should be stored under a roof.

INSTALLATION
fixing and sealing

General
Correct installation is crucial for the functioning and life of the units. Therefore, the work should be performed by workmen skilled in the installation of windows and external doors.

The following instructions cover some of the main aspects of the installation work but not all the details which may play a role in the installation.

Normally, windows and doors are supplied with the glazing units fitted but in the case of fixed lights, glazing units are often fitted after the frames have been installed. Such glazing units must be fitted in accordance with the fitting instructions provided by Glasindustrien (the Danish Glass and Glazing Industry Federation) or as directed by the window supplier.

It will facilitate the installation of most types of unit to remove the casement or door leaf before the first stage of the installation of the frame.

Installation
The frame is normally positioned in the wall hole with a uniform gap around jamb and head while taking account of the level of the frame sill in relation to the wall sill/floor level.

The gap between the frame and the surrounding brickwork/wall structure should normally be around 12 mm.

The recommendation is to set the window/door unit back 4 to 5 cm from the external face of the wall to offer some protection against the wether.

At the hinge side, the frame must be level and plumb (wide and narrow side).

The frame must be adjusted and fixed to allow the correct fit and prescribed clearance all the way round between frame and casement. Fixing Windows and external doors must always be fixed to the surrounding brickwork or building structure by means of mechanical fasteners such

as frame screws/dowels or brackets.

Fixing to the inner skin of brick built buildings before erecting the outer leaf requires the use of special fixing brackets capable of transferring all future vertical and horizontal forces. Alternatively, the units must be permanently fixed to the brick face (outer leaf) in accordance with the instructions below.

When using expanding foam to fill the gap between the external face of the frame and the surrounding brickwork or building structure, you must apply the same mechanical fixing method as described below.

If the frame is secured by fasteners (frame screws and dowels or brackets) at each individual fixing point in the opening, the unit will not need permanent blocks.

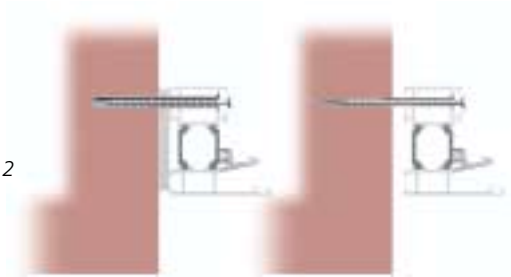
Other fasteners require the use of firm, permanent blocks of a material which remains stable under moisture, such as marine plywood or a synthetic material, possibly with the addition of a damp proof course. Permanent blocking must not be used at the head of wide units, e.g. lift-and-slide doors, where there is a risk of exposure to load from the structure above.

As a rule, window and door units must not be exposed to load from other building parts or structures.

In general, the distance between fixing points must not exceed 90 cm, cf. ill. 1.

ill. 1

Fasteners such as frame screws and dowels are normally located in the frame rebate, cf. ill. 2.



ill. 2

Special instructions - windows
If units are less than 120 cm wide, no fixing at head and sill is required. Permanent blocks must be inserted under the extremes of sills at both ends; units with mullions also require permanent blocks under the sills below the mullions, cf. ill. 3. The blocking material must meet the requirements stated for permanent blocks/damp proof courses.

ill. 3

ill. 4

Special instructions - doors
At the hinge side, the upper and lower fastener are located close to the respective hinges.

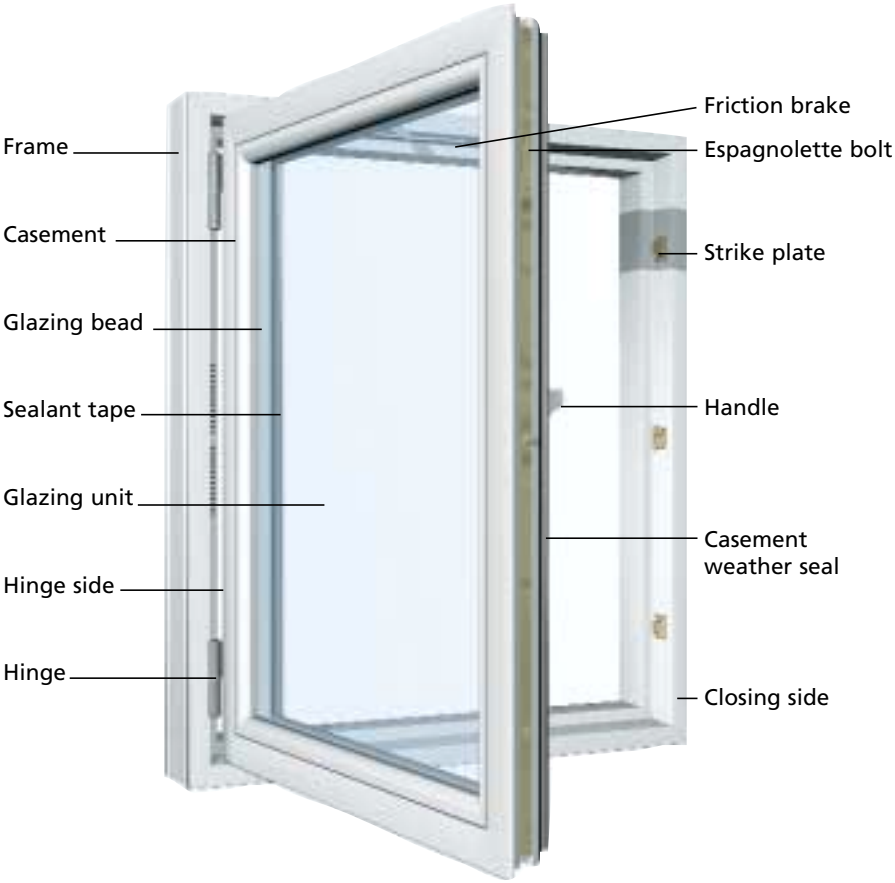
Permanent blocks must be inserted under the extremes of sills at both ends; wide doors must be permanently blocked below the centre of the sill, cf. ill. 4. Double leaf doors with or without a centre post must be permanently blocked under the post/where the leaves abut. The blocking material must meet the requirements stated for permanent blocks/damp proof courses.

The frame must be permanently blocked behind the strike plate at the closing side, cf. ill. 4. This block serves primarily to make the door intrusion resistant.

Application of sealant
The application of sealant (caulking) should follow the guidelines for the project in hand or the guidelines drawn up by Fugebranchens Samarbejds- og Oplysnings-råd/ FSO, the cooperation and information council of the Danish sealant application and manufacturing industry. www.fugebranchen.dk

When caulking, care must be taken not to compress the material so hard that it causes distortion of the frame section. If using expanding foam to fill the gap between frame and wall structure, the frame must be stiffened until the foam has expanded fully or the frame sections kept straight in some other way. Externally, there must always be a protective finishing coat in the form of a mastic sealant, tape or a similarly effective measure.

PERFORMANCE *and operation*



TOP HUNG
casement

Various types of hinges are used for top hung casements, all of them providing a fixed pivoting point near the casement head. Opening the window projects the lower part of the casement outwards, while the casement head basically stays in position apart from pivoting round the hinge.

The casement is usually operated via a handle located in the middle of the bottom rail. The casement can be retained in a ventilation position giving a 1-2 cm gap at the bottom.

The window may have a casement stay to hold the casement in position when opened to a wider angle. As a design, the top hung casement has to a considerable extent been replaced by the top guided casement, cf. below.

TOP GUIDED
casement

This type of casement features top guided hinges in the upper frame and casement jambs; opening the window projects the lower part of the casement outwards and pulls the casement head down a little in the process.

The casement is operated by a handle located in the middle of the bottom rail.

When opened, the casement can be retained in a ventilation position giving a 1-2 cm gap at the bottom.

When opened to a wider angle, the casement is controlled by friction brakes in the hinges. The amount of friction can be easily adjusted, but you must ensure that the amount of friction applied is the same at both sides of the casement. Please note that the friction brake will not retain the casement in position under higher wind loads.

SIDE HUNG
casement

The type of hinge may vary but ordinary side hung casements function the same way.

Older (mullion/transom) window designs normally use (short) casement fasteners with a longer sturdier type of fastener for 90° opening angles.

More recent designs are operated by means of a single handle at the closing side of the casement; while in the open position the casement may be guided by a friction brake.

Please note that the friction brake will not retain the casement in position under higher wind loads.

TILT/TURN
casement

A tilt/turn casement is an inward opening window which, as the name implies, will turn perpendicularly on hinges in the casement jamb and tilt horizontally from hinges in the bottom rail/sill.

The side hung function is primarily used in connection with cleaning of the external face of the glazing unit, while the bottom rail pivoting function is used to provide ventilation.

The casement is operated by a handle in the casement jamb; when closed, the handle is turned downwards. Depending on the make of handle, one function is achieved by turning the handle to a horizontal position and the other position by turning it (upwards) to a vertical position. By turning the handle to 45° it will often be possible to secure the casement in the bottom pivoting position, giving a 1-2 cm ventilation gap at the casement head. Fully tilted in the bottom pivoting position there will be a gap of approximately 10 cm at the top, although this dimension will vary dependent on the casement height.

EXTERNAL *doors*

(inwards generally being the most common).

Normally, an external door will have three fastening points at the handle side where the middle fastening point engages when the handle is operated normally. The lower and upper fastening points are engaged by lifting the handle upwards whereupon the door can be locked.

External doors come in a variety of types and designs, the details of which must be discussed at the time of purchase.

PATIO *doors*

Patio doors can open outwards or inwards and be designed as glazed doors with the possible addition of panels.

Patio doors usually have three fastening points at the handle side, all of which are engaged by turning the internal handle 90°.

Once opened, the door can be controlled by a friction brake. However, please note that this brake will not retain the casement in position under higher wind load.

TILT/TURN *doors*

In principle, the function and operation of a tilt/turn door (patio or balcony door) corresponds to that of a tilt/turn casement (see above).

LIFT/SLIDE *doors*

A lift-and-slide door set consists of a fixed and a sliding half. Turning the door handle lifts the sliding door leaf up, disengaging it from the frame, and allowing it to slide alongside the fixed section. Once closed, the door is locked by turning the door handle fully back to the vertical locking position.

TILT/SLIDE *doors*

Overall, this type of door functions like a lift-and-slide door. However, opening the slide/tilt door starts by disengaging the door leaf and tilting it in relation to the frame. Then the lower end of the door leaf is projected outwards, allowing the disengaged leaf to slide alongside the fixed section. Once closed, the door is locked by turning the door handle fully back to the vertical locking position.

MAINTENANCE:
cleaning and lubrication

General maintenance information Windows and external doors of all materials require general maintenance, comprising cleaning and lubrication and a check of weather seals and sealant tape. This maintenance should be carried out in accordance with the following guidelines.

Cleaning
Depending on the direction they face and their location, external casement and frame surfaces will become dirty. They should therefore be cleaned at suitable intervals, normally in connection with cleaning the glazing units. Use water with a normal cleaning agent added. Finish by wiping surfaces and edges dry.

Lubrication
Once a year, all moving parts in hinges, handles and locks should be lubricated. It is particularly important that moving parts held together by rivets, e.g. turn hardware, are cleaned and lubricated at least once a year.

Metal-only connections are lubricated with a neutral oil applied using an oil can, syringe or a spray can with a thin tube.

Moving connections consisting of metal and synthetic materials should be lubricated with candle wax or a special lubricant in accordance with the supplier's instructions. Such connections are found in various types of hinge tracks; for them to function properly it is important that the hinge tracks etc. are also kept clean.

Weather seals and sealant tape
At the same time as the annual lubrication, weather seals and glazing tape should be checked. Weather seals should be checked for proper location and fixing and to ensure that the seals are still sealing properly. Most types of elements allow simple removal and refitting of weather seals; this should preferably be carried out in connection with the application of a new coat of surface treatment. Never overpaint weather seals!

Glazing tape should be checked for proper location and compression to ensure ensure their continued weathertightness, also in corner joints. The compression of the glazing tapes is most easily checked using a thin feeler gauge, which should encounter resistance when inserted between the glass and the glazing tape.

VENTILATION
of the dwelling

New windows will usually be very airtight and there will therefore be a need for more systematic ventilation of the dwelling than in the case of older, draughty windows.

Regulatory requirements
The 2010 Danish Building Code ("BR10") lays down the following requirements for habitable rooms: Each habitable room as well as the dwelling overall must have a minimum external air supply of 0.3 l/s per m^2 heated floor area.

Internal air must be removed through extraction in kitchens, bathrooms, toilets, utilities and similar rooms, in detached houses possibly through natural ventilation.

To help meet these requirements BR10 contains the following guidance for habitable rooms:

Supply of external air: Opening window, hatch or external door and by natural ventilation: One or more vents to the external air with a total unobstructed opening of at least 60 cm^2 per 25 m^2 floor area.

Mechanical extraction: The area of the opening to the external air may be calculated on the basis of ventilation techniques.

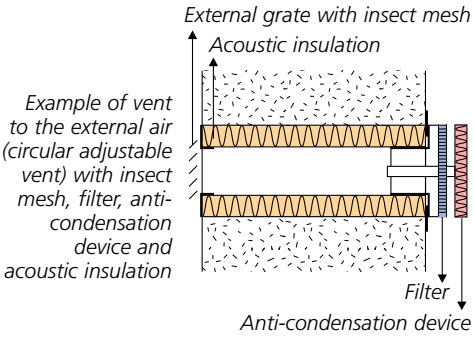
For other rooms (kitchens, bathrooms and toilets etc.) please consult specific guidance under BR10.

External air vents
For many years, it has been common practice to incorporate external air vents into the casement or frame head, a solution generally considered the easiest option.

On the website of the Danish Enterprise and Construction Authority ("Erhvervs- og Byggestyrelsen") under BR10, you'll find a description of the various types of external air vents and an evaluation of their performance.

Based on the Authority's evaluation the types of vents used for incorporation into windows do not perform optimally. In its opinion, circular adjustable vents incorporated into the external walls provide a better solution, cf. the above illustration.

Advice on ventilation
Instruction No. 76 from The Danish Building Research Institute gives some practical recommendations about ventilation of the dwelling. The instruction (5th edition 1997) has been reproduced on the following page.


External grate with insect mesh
Acoustic insulation
Example of vent to the external air (circular adjustable vent) with insect mesh, filter, anti-condensation device and acoustic insulation
Filter
Anti-condensation device

Avoid damage from damp - open the window!

The air in a flat can soon become too humid as a consequence of cooking, washing, bathing and watering potted plants. The humid air may cause damage from damp (mould spots) and health hazards (dust mites).

Many people believe a flat to be self-ventilating but this is rarely the case. The inhabitants must therefore themselves ensure *sufficient ventilation to remove the moisture generated in the flat.

Newer buildings usually have mechanical ventilation, extracting air from kitchen and bathrooms through extraction vents in or near the ceiling. These vents must be kept open and clean to operate effectively. Often, there are also vents providing external air in or near windows. These supply the air which is subsequently extracted through kitchen and bathrooms. These vents should be kept permanently open.

In older buildings with small opening ventilation lights it may be necessary to leave them permanently slightly ajar to provide enough fresh air.

REMEMBER: VENTILATE SUFFICIENTLY TO AVOID THE WINDOWS STEAMING UP.

Even if we must save energy, going overboard could lead to damp air and poor air quality in our rooms which should be avoided. Luckily, heating reasonable amounts of fresh air won't cost a fortune.

It will cause fewer damp problems if all rooms are heated to about the same temperature.

Newly built flats may need to dry out. Therefore, care should be taken to ventilate particularly frequently during the first year of living in a new flat.

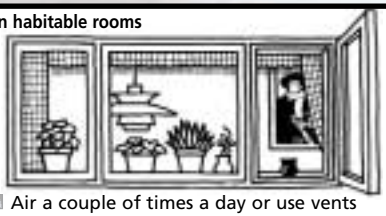
Replacing the windows or fitting draught excluders to doors or windows can make a flat so draught-proof that it requires more frequent ventilation than before.

Where people smoke it's a good idea always to keep vents to the external air open or leave small opening ventilation lights ajar.

In general, you should contact the caretaker or other relevant person if damp problems arise. Faults are most easily corrected if you intervene straight away.

REMEMBER: GOOD VENTILATION IS A MUST FOR A GOOD INDOOR CLIMATE.

in habitable rooms



Air a couple of times a day or use vents to the external air, if available.

If the windows start to steam up, take care to air more.

Do not turn off the heating completely in rooms which aren't in use.

Do not place wardrobes or large items of furniture completely up against an outer wall; the air in the room must be allowed to circulate behind them to prevent the formation of mould spots on the wall.

in bedrooms

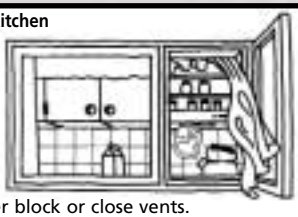
Air the room and make sure the bedding is aired every morning.

Turn the mattresses occasionally.

Don't leave bedrooms completely unheated.

If the windows steam up, ensure better ventilation to the external air or to the other rooms in the house or flat.

in the kitchen



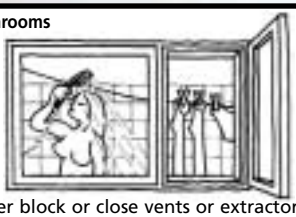
Never block or close vents.

Open up vents fully or turn extractor fan or cooker hood to maximum speed when cooking.

Putting lids on pans during cooking limits the amount of moisture entering the kitchen.

Air well during and after cooking.

in bathrooms



Never block or close vents or extractor fans.

Avoid in so far as possible to wash and particularly to dry washing in the flat. However, if you can't, then do it in the bathroom and ensure ample ventilation.

Air well after having a bath or shower.

Warm and humid air from tumble dryers should be vented direct to the external air.

Source: SBI-ANVISNING 76 · 5th EDITION · ISBN 87-563-0962-7 · COPYRIGHT STATENS BYGGEFORSKNINGSINSTITUT 1997

5-YEAR *warranty*

VINDUES INDUSTRIEN GARANTI

Warranty
As from 1 September 2009 the following warranty conditions shall apply to all members of VinduesIndustrien (The Association of Danish Window Manufacturers) who are all affiliated to DVC/ Dansk Vindues Certificering, the Danish window certification body.

I. This warranty has been issued by the member of VinduesIndustrien mentioned below - hereafter referred to as the warrantor. This warranty shall not limit or modify in any respect your rights in contact and/or law against your supplier/contractor or against the warrantor.

II. If within five years from the date of delivery by the warrantor and within 3 months of discovering the defect you report a defect in materials and/or workmanship, the warranty shall give you the rights against the warrantor listed in paragraph 3. The product is labelled with the date of manufacture. You may be required to document the delivery date.

III. If a justified claim concerning defects in materials and/or workmanship is made within the period mentioned in paragraph 2, the warrantor undertakes to supply a new product free of charge. However, under this warranty the warrantor shall not be liable for the cost of dismantling/removing the old product nor for installing the new product nor for any additional work in relation to replacing the product. If the product is no longer in production at the time a claim is made, the warrantor shall be entitled to supply a similar product instead. If defects in materials and/or workmanship can be remedied properly by repair/partial replacement, the warrantor may choose this option instead. The repair/partial replacement shall then follow free of charge.

IV. This warranty shall not cover defects in the materials and/or workmanship of sealed

glazing units. However, in such cases the warranty of the sealed glazing unit manufacturer shall apply; please refer to this.

V. This warranty does not give you rights over and beyond what is mentioned in paragraph 3.

VI. If you wish to claim under the warranty for defects in materials and/or workmanship, the claim must be lodged within 3 months of discovering the defect or within 3 months of the time when you ought to have discovered the defect. The claim can be lodged with the warrantor or with the contractor/supplier who supplied the product.

VII. This warranty shall not apply if the claimed defects in materials and/or workmanship are due to incorrect fitting, lack of or inadequate maintenance or incorrect operation. Please refer to the warrantor's fitting, operating and maintenance instructions. For timberwindows/doors with a factory surface treatment please refer in particular to the maintenance instructions and the description "Expected outcome of industrially surface-treated timber elements" (Annex 14 of the VinduesIndustrien Technical Requirements). If, exceptionally, you did not receive maintenance/ operating instructions in connection with the delivery, you should request them direct from the warrantor.

VIII. Under this warranty, you cannot claim for defects in materials and/or workmanship caused by circumstances which have arisen after the product was supplied by the warrantor. Defects in materials which may be attributed to, for example, incorrect storage, transport or fitting by a middleman/-contractor cannot be claimed against the warrantor under this warranty.

IX. This warranty applies exclusively to products which at the time of making a claim under the warranty are physically located in Denmark, but is not valid in Greenland or the Faeroe Islands.

X. If the company has been declared bankrupt, please consult the rules applicable under the VinduesIndustrien Warranty Scheme.

The above warranty, which has been filed with the Danish Competition Authority, was last revised on 1 September 2009.

WARRANTY SCHEME FOR *DVV-labelled units*

In order to provide cover in case the window manufacturer is unable or unwilling to meet his warranty obligations, cf. the 5-year warranty, VinduesIndustrien has set up a warranty scheme applicable to private consumers who have purchased DVV-labelled windows or external doors.

The terms of this warranty in its entirety are available at www.vinduesindustrien.dk

Claims must be dealt with by Byggeriets Ankenævn or Håndværkets Ankenævn, the Appeals Boards established by various Danish trade, industry and employers associations, the Danish Consumers Association and the National Houseowners Association. Defects must be rectified in accordance with the findings of the Boards. Claims must be lodged within 5 years from the window manufacturer's date of delivery, however subject to the claim being lodged within 3 months of discovering the defect or within 3 months of the time when you ought to have discovered the defect.

- The warranty provides cover up to DKK 10,000 incl. VAT for each component/unit and up to DKK 200,000 incl. VAT for each disputed building project.
- The warranty scheme must provide cover of DKK 1,000,000 incl. VAT per company, and DKK 5,000,000 incl. VAT per calendar year.

THE DVV LABEL -

assured warranty, quality and durability

DANSK VINDUES VERIFIKATION

For windows and external doors to receive the DVV label, the window manufacturer must be subject to an impartial inspection of his factory once or twice a year. The inspection comprises checking whether the company's quality control and finished units meet the requirements regarding, e.g., design, performance, materials and surfaces as specified in the Technical Requirements for DVV.

The impartial body carrying out these inspections in the factories is Dansk Vindues Certificering/DVC (the Danish window certification body). To see which companies are certified, please visit www.dvc-vinduer.dk

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